

## **PACKAGING AND COVER FOR PACKAGING FOR COSMETIC OR PHARMACEUTICAL COMPOSITIONS**

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### **BACKGROUND OF THE INVENTION**

The present invention relates to a cover for packaging of cosmetic compositions and/or pharmaceutical compositions, to a packaging such as

- 10   refillable packaging and sealed packaging for cosmetic and/or pharmaceutical compositions, and to cosmetic and/or pharmaceutical compositions packaged in the packaging.

Packagings for cosmetic compositions are typically provided with a rigid cover which prevents variation of the internal volume of the packaging.

- 15   In the case of sealed packaging, a variation of the internal pressure, for example, an increase of the internal pressure induced by closing of the cover, or a variation of the external pressure, induces a difference of pressure between the interior and the exterior of the packaging.

This pressure variation has numerous disadvantages. On one

- 20   hand, hermetic sealing of the packaging can be compromised leading to a risk of leakage of the cosmetic composition due to excessive internal pressure, or of contamination of the cosmetic composition due to internal low pressure. Furthermore, low pressure created by movement of the wall of the cover during opening of the packaging risks detaching the cosmetic composition and carrying  
25   it outside of its housing. Moreover, compression of the air tends to work against closing of the packaging, while external pressure not balanced by an equivalent internal pressure tends to work against opening of the packaging. This pressure variation occurs for containers with a sealed compartment.

Cosmetic compositions based on wax and emulsions of fatty

- 30   material can advantageously be refilled within a container, particularly in the case of foundations, lipsticks, rouges or creams, by-products based on solvents, such as water, volatile silicones, alcohols or mixtures of them. These types of products require for their storage a packaging with a sealed compartment.

The sealed packagings for cosmetic compositions of known type have an elastomer seal with compression having an axial component. These packagings have numerous disadvantages. The sealed quality is only ensured if the elastomer seal is compressed with a relatively high force, making the closing of the packaging difficult or not very reliable. Furthermore, the packaging has a high price, due not only to the use of an expensive seal, but also due to difficulties of automation of the positioning of a non-rigid part, such as an elastomer seal.

One other problem with sealed cosmetic packaging concerns refills. Production of a packaging of a cosmetic composition by placing a refill inside a housing is known. The positioning and holding of the refill is not always easy. Moreover, the volume of the container receiving the refill increases the space requirement of the packaging. Furthermore, it is not always easy to ensure the temporary hermetic sealing of a sealed compartment of a refillable packaging for a cosmetic and/or pharmaceutical composition produced based on a volatile solvent.

#### **SUMMARY OF THE INVENTION**

One embodiment of the present invention includes a cover for a packaging for a cosmetic and/or pharmaceutical composition. The cover comprises means of attachment on a container of the packaging and a sealing wall for sealing an opening of the container. The sealing wall is a flexible wall that is elastically deformable by a difference in pressure exerted on its two main sides.

Another embodiment of the present invention includes a packaging for a cosmetic and/or pharmaceutical composition. The packaging comprises a container for receiving the cosmetic and/or pharmaceutical composition and a cover with an elastic deformation. The elastic deformation occurs as a result of a difference between internal pressure predominating in the container and an external pressure that at least partially balances the pressure differences on the sides of the flexible wall.

One other embodiment of the present invention includes a cosmetic and/or pharmaceutical composition disposed in packaging that has a

ventilated compartment and some means of application of cosmetic and/or pharmaceutical composition of the sponge or Japanese foam type.

Another embodiment of the present invention includes a sealed packaging for cosmetic or pharmaceutical compositions. The sealed packaging includes a sealed compartment defined by a container and a fitted cover characterized by radial walls that are arranged a distance  $d$  apart from one another. One of the walls is provided with an annular rib having a radial extent in a direction of the other wall which is greater than  $d$ , in such a way as to exert on the opposite wall a radial force ensuring temporary hermetic sealing of the sealed compartment of the packaging.

Another embodiment of the present invention includes a refillable packaging for a cosmetic and/or pharmaceutical composition which has an external envelope wherein the external envelope is provided with an opening for receiving a container of a refill of cosmetic and/or pharmaceutical composition. The packaging further comprises an opening of the container that opens inside external envelope and means of locking the container of the refill in position in the packaging.

One additional embodiment of the present invention includes a process for packaging a cosmetic and/or pharmaceutical composition. The process includes filling a container of a refill with cosmetic and/or pharmaceutical composition. The process also includes assembling the container of the refill containing cosmetic and/or pharmaceutical composition with a packaging.

### **DESCRIPTION OF THE DRAWINGS**

Figure 1a is a view in cross-section of a first example of execution of a packaging according to the present invention subjected to excessive external pressure.

Figure 1b is a cross-sectional view of the packaging of Figure 1a subjected to low external pressure.

Figure 2 is a view in cross-section of a second example of execution of a packaging according to the present invention.

Figure 3 is a view in longitudinal section of one embodiment of execution of a packaging according to the present invention.

Figure 4 is a view in cross-section of the packaging of Figure 3.

Figure 5 is a top view of a platform forming a cover of the packaging of Figure 3.

5     Figure 6 is a view in longitudinal section according to VI-VI of the platform of Figure 5.

Figure 7 is a cross-sectional view of one embodiment of a packaging according to the present invention.

Figure 8 is a cross-sectional view of another example of execution of a packaging according to the present invention.

10     Figure 9 is a cross-sectional view of another example of packaging of the present invention.

Figure 10 is a cross-sectional view of one other example of packaging of the present invention.

15     Figure 11 is a cross-sectional view of another embodiment of packaging of the present invention.

Figure 12 is a cross-sectional view of another embodiment of packaging of the present invention.

20     Figure 13 is a cross-sectional view of one other embodiment of packaging of the present invention.

Figure 14 is a cross-sectional view of another embodiment of packaging of the present invention.

Figure 15 is a cross-sectional view of another embodiment of packaging of the present invention.

25     Figure 16 is a side view of packaging of Figure 15 in an open state.

Figure 17 is a cross-sectional view of a cup of the packaging of Figure 15.

Figure 18 is a top view of the cup of Figure 17.

30     Figure 19 is a view on a larger scale of the packaging of Figure 15.

Figure 20 is a cross-sectional view of one embodiment of packaging of the present invention.

Figure 21 is a cross-sectional view of another embodiment of packaging of the present invention.

Figure 22 is a cross-sectional view of another embodiment of packaging of the present invention.

5        Figure 23 is a cross-sectional view of another embodiment of packaging of the present invention.

Figure 24 is a cross-sectional view according to VII-VII of a refill trough of the packaging of Figure 4.

10       Figure 25 is a cross-sectional view according to VIII-VIII of a refill trough of the packaging of Figure 3.

Figure 26 is a top view of the refill trough of the packaging of Figure 3.

### **DETAILED DESCRIPTION**

One embodiment of the present invention includes a

15    packaging with a sealed compartment with substantially no leakage of a cosmetic and/or a pharmaceutical composition due to excessive internal pressure, or of contamination due to excessive internal pressure. Furthermore, with the packaging of the present invention, there is no risk of flow of the composition during opening, closing or operation of refilling of the packaging. The

20    packaging is easy to open and close. The packaging has a sealed compartment closed by a cover which is provided with a wall which can be deformed, preferably elastically, by a difference between the internal pressure predominating in the sealed compartment and the external pressure.

Other embodiments of the present invention include packaging

25    which allows for automated assembly and automatic filling, particularly at high temperatures, greater than 50 degrees Centigrade, typically between 75 and 100 degrees Centigrade. Incomplete or incorrect closing of the packaging is virtually impossible. The packaging is therefore reusable.

One embodiment of the present invention includes a cover for a

30    packaging for a cosmetic and/or pharmaceutical composition such as foundation, cream, rouge or lipstick, which has a mechanism for attachment onto a container of the packaging and a wall for sealing an opening of the container, characterized by a flexible sealing wall which is deformed elastically by a difference in

pressure exerted on its two main sides. The cover displays an elastic deformation caused by a difference between the internal pressure predominating in the container and the external pressure that at least partially balances this pressure difference.

- 5                   Another embodiment of the present invention includes a packaging wherein the cover has a wall extending at least locally facing a wall of the container and wherein the side of the wall of the cover facing the wall of the container is provided with a radial rib whose radial extent is greater than the distance between the two walls facing one another so as to ensure, by radial
- 10   contact, temporary hermetic sealing of the sealed compartment of the packaging.

One sealing wall embodiment comprises a wavy wall that includes concentric patterns in wave form increasing the flexibility of the wall in a direction normal to the opening to be sealed.

- One other packaging embodiment comprises a box with a small
- 15   thickness when it is provided with a middle platform, delimiting an upper ventilated compartment and a sealed compartment for receiving a cosmetic and/or pharmaceutical composition, and wherein the platform forms a cover for the latter compartment.

- Another packaging embodiment includes a mechanism for
- 20   receiving a removable container forming a refill of cosmetic and /or pharmaceutical composition. The packaging has a receiving opening and some mechanism of locking in position, particularly by clipping, of a removable container in the form of a trough or cup, whose opening opens inside the packaging. Some packaging embodiments further include a ventilated
- 25   compartment, some mechanism of application of the cosmetic and/or pharmaceutical composition of a sponge or Japanese foam type.

- One other packaging embodiment for cosmetic compositions according to the present invention includes a sealed compartment defined by a container and a cover which are associated, having radial walls arranged at least
- 30   locally a distance  $d$  apart from one another. One of these walls is provided with an annular rib having a radial extent in the direction of the other wall which is greater than  $d$ , which is capable of exerting on the opposite wall a radial force ensuring temporary hermetic sealing of the sealed compartment of the

packaging. It is well understood that the distance  $d$  at rest can be zero. The diameter of the external side of the wall of the cover can be greater than the diameter of the internal side of the container. In this case, during assembly, the external side of the wall of the cover and the rib separate the walls from one another. This packaging is capable of receiving refills.

For some embodiments, the cover of the packaging constitutes the cover of the sealed compartment. The sealed compartment is for cosmetic compositions based on volatile solvents and a ventilated housing for storage of a mechanism of application, such as a Japanese foam or a sponge, which are better maintained in a dry atmosphere. In this case, the packaging according to the present invention comprises an intermediate platform between the cover of the packaging and the sealed compartment. In both cases, the cover of the compartment is advantageously flexible and/or deformable so as to ensure, by the deformation of the cover of the sealed compartment with respect to the external pressure.

The platform delimits a chamber for receiving the cosmetic and/or pharmaceutical composition and a ventilated compartment for receiving the mechanism of application of the cosmetic and/or pharmaceutical composition. The platform ensures hermetic sealing of the container of the refill. The platform can be deformed so as to allow compensation for the difference in pressure between the interior and the exterior of the container of the refill.

A wall of application of the annular rib or the wall bearing the annular rib corresponds to a wall of the container of the sealed compartment filled with the cosmetic composition. The compartment is provided with a first wall delimiting a container for receiving the cosmetic composition and a second wall, radially external with respect to the first wall, bearing the annular rib or serving as support surface for this rib. Thus, the support of the rib is prevented from separating the wall of the container for receiving the cosmetic composition from this composition, which would promote its detachment.

One other embodiment of the present invention includes sealed packaging having a locking mechanism that locks the packaging in a closed state in which the compartment is hermetically sealed. The annular rib is arranged on a radially external side of the wall of the cover arranged opposite a radially

internal side of a wall of the container. In one embodiment, the container has two parallel or roughly parallel walls. The rib is applied on or by the radially external wall of the container to ensure hermetic sealing. The first wall delimits a chamber for receiving the cosmetic and/or pharmaceutical composition and the  
5 second wall for application of the mechanism of hermetic sealing of the container of the refill.

Another embodiment includes a refillable packaging for a cosmetic and/or pharmaceutical composition, which has an external envelope, characterized by an opening for receiving a container of a refill of the cosmetic  
10 and/or pharmaceutical composition and an opening of the container opens inside the external envelope, and by a mechanism of locking the container of the refill in position in the packaging. One mechanism for locking comprises projecting elements ensuring the locking and holding by clipping of the container of the refill in the packaging.

15 The container of the refill has a wall with an undercut shape delimiting a chamber for receiving the cosmetic and/or pharmaceutical composition. For some embodiments, the packaging comprises a flat box and the container of the refill is a trough or a well.

For one packaging embodiment, the opening is made in a base of  
20 the external envelope of the packaging and the external wall of the bottom of the container of the refill is in the extension of the external side of the base of the envelope of the packaging.

The present invention also includes a process for packaging a cosmetic and/or pharmaceutical composition. The process includes filling a  
25 container of a refill with a cosmetic and /or pharmaceutical composition and assembling the container of the refill containing the cosmetic and /or pharmaceutical composition with the packaging. Filling may occur while the cosmetic and/or pharmaceutical is hot. The filling may occur by pressing the cosmetic and/or pharmaceutical

30 Figures 1a and 1b illustrate one embodiment of packaging 1, according to the present invention, which has, for example, container 3 of cosmetic and /or pharmaceutical composition 5, for example, of the pot, trough,



cup or other type. Container 3 is provided with cover 6 ensuring the hermetic sealing of internal chamber 7 of packaging 1.

Cover 6 has a mechanism held on container 3, for example, of a roughly cylindrical wall 9 provided with threading 11 fitted to threading 13 of the upper end of packaging 1 and wall 15 for sealing of opening 7 of container 3. In Figure 1, wall 15 is flexible so that it can be advantageously elastically deformed by a difference in pressure predominating on its two main opposite sides. Flexibility is given to wall 15 by its small thickness, by the use of a flexible material or by its structure. In Figure 1a, the external pressure was greater than that predominating inside chamber 7 of packaging 1, causing deformation of wall 15 towards the interior of chamber 7. Seen from the outside, wall 15 is concave. The deformation of wall 15 makes it possible to balance or at least to reduce the imbalance of the pressures.

The deformations of wavy wall 15 ensure compensation for the differences in the pressures against the two main sides. One thus avoids suction of cosmetic composition 5 by low pressure caused by opening of the box according to the present invention, compression of the cosmetic composition due to closing of the box, as well as sealing problems connected with variations in atmospheric pressure which varies with meteorological conditions and with altitude, as well as that connected with the creation of low pressure or excessive pressure in rooms such as pressurized cabins of aircraft. Moreover, the internal pressure is less of a hindrance to closing of the packaging according to the invention, and the external pressure works against opening of the packaging to a lesser extent.

In contrast, in the case illustrated in Figure 1b, the internal pressure of chamber 7 was higher than the external pressure. This resulted in swelling of flexible membrane 15, a membrane which, seen from the outside, has a convex surface. Deformation of flexible membrane 15 made it possible to balance the pressures or at least reduce the imbalance.

In Figure 2, is an embodiment of packaging 1 which has a cover 6 which has wavy wall 15 whose concentric waves 19 facilitate deformation. The cover has wall 21 arranged parallel to the upper part of packaging 1. The distance between the radially internal side of the upper part of container 3 and

the radially external side of wall 21 is advantageously constant or roughly constant. This distance is typically between a few tenths and a few hundredths of a mm. The radially external side of wall 21 bears annular rib 23 whose thickness in the non-constrained state is greater than the average distance  
5 between the radially external side of wall 21 and the radially internal side of container 3. For example, for a distance between sides facing one another equal to 0.1 mm, annular rib 23 has a radial projection of 0.3 mm so that the radial forces exerted by rib 23 on the radially internal side of container 3 correspond to a deformation of wall 21 of 0.2 mm on each side in such a way as to ensure  
10 temporary hermetic sealing of chamber 7. As a variant, at rest, the diameter of opening 7 is greater, for some embodiments, than the diameter of the radially external side of wall 21. In this case, cover 6 is introduced by force and rib 23 separates the walls facing one another. Introduction is advantageously facilitated by a widened zone at the opening.

15 In Figure 4, one can see an embodiment of packaging 1 in a form of a relatively flat box having lower part 25 and upper part 27. Lower part 25 has central opening for receiving refill 29 in a form of a trough or cup whose attachment on the box is ensured by a conventional mechanism such as, for example, by screwing, for example, over a quarter turn, or advantageously, by  
20 catching. Refill 29 receives, for example, in a hot filling line, typically 80 degrees C, a cosmetic composition such as, for example, a foundation, a rouge, or a lipstick produced based on a volatile solvent such as water.

Platform 31, embodiments of which are illustrated in Figures 5 and 6, ensures the hermetic sealing of refill 29 and delimits chamber 33 which is  
25 ventilated by openings which are not represented, for storage of some mechanism of application of the cosmetic composition, for example, a sponge or Japanese foam. This embodiment prevents degradation of the mechanism of application by humidity and particularly the formation of mold. Chamber 33 receives mirror 35. Other non-refillable boxes having a single-piece lower part  
30 25 incorporating walls which delimit chamber 7 is not outside the scope of the present invention.

Advantageously, lower part 25, platform 31 and upper part 27 are articulated by a hinge mechanism 37. Refill 29 advantageously has an undercut

shape, i.e. its opening has a width smaller than that of its widest part. Consequently, on one hand, the refill tends to retain a cosmetic composition if packaging 1 is overturned. On the other hand, the narrow walls of refill 29 at the site of the opening provide optical masking of possible detachment of the cosmetic composition with respect to the walls at the bottom, due to evaporation of the solvent in case of prolonged opening of the packaging. The undercut shape of refill 29 also makes it possible to mask the shrinkage of the cosmetic composition which is poured hot into the refill, during its shrinkage due to a cooling phase.

Advantageously, refill 29 has a hermetic sealing wall radially external with respect to the undercut wall defining chamber 7. The radially internal side of the radially external wall of refill 29 forms a support surface for annular rib 23 which ensures temporary hermetic sealing. Consequently, the external radial forces exerted by rib 23 are only partially transmitted to the undercut wall, which considerably limits the risk of detachment of the cosmetic composition from this undercut wall, as shown in Figures 3 and 19.

Packaging 1 according to the present invention advantageously has some mechanism for locking 39 with a pusher and hooks, shown in Figures 3 and 5. The cover 6 for trough or well 10, shown in Fig. 21, ensures hermetic sealing between two uses.

Advantageously, the sealing is ensured by rib 23 whose thickness in the non-constrained state is greater than the distance between the radially external side of the wall of platform 28, shown in Figure 3, and the radially internal side of the external wall of trough or well facing it. For example, a distance between sides facing one another equal 0.1 mm, rib 23 having a radial projection of 0.3 mm in such a way that the radial forces exerted by rib 23 on the wall facing it correspond to a deformation of 0.2 mm which ensures hermetic sealing of trough or well 10. It should be noted that rib 23 exerts forces which have a radial component, the axial components being zero or roughly zero when the packaging is closed. During closing, the very weak axial forces correspond to friction of rib 23 of the internal side of external wall 21 of trough or well 10. Consequently, on one hand, it is possible to provide excellent sealing of the packaging according to the present invention without having to exert great axial

forces, and other the other hand, the reaction to the axial forces being themselves zero or roughly zero, the seal does not tend to cause the packaging according to the present invention to open.

Moreover, the seal is completely ensured regardless of the depth  
5 to which the cover is pressed in. A temporary sealing of the packaging according to the invention results, even in the case the precision of assembly of the pieces of the packaging was not perfect.

Advantageously, upper part 27 is provided with space 36 which is ventilated by openings, not shown, for storage of the mechanism of application  
10 of the cosmetic composition, for example, a sponge or a Japanese foam. One thus prevents degradation of the mechanism of application by humidity and particularly the formation of mold. Space 36 can receive mirror 35.

Advantageously, platform 30', shown in Figures 4 and 13, is deformable by a difference in pressure predominating over that of the opposite  
15 side in order to ensure compensation for this difference in pressure. One thus avoids suction of the cosmetic composition by a low pressure brought about by opening of the box according to the present invention, compression of the cosmetic composition due to closing of the box as well as sealing problems connected with variations in atmospheric pressure which varies with  
20 meteorological conditions and with altitude, as well as with low and high pressures created in rooms such as the pressurized cabin of an aircraft. For example, platform 30' has concentric corrugations or waves 37.

The packaging shown in Figures 3 and 4 is capable of receiving a refill provided with cosmetic composition 5, for example, of the foundation,  
25 rouge or lipstick type. The bottom of trough or well 10 is made rough or having striations which promote adhesion of the cosmetic composition 5. The box of Figures 3 and 4 has lower part 25 and upper part 27 separated by platform 30' which is advantageously provided with a seal ensuring the sealing of trough or well 10 arranged in lower part 25.

Figures 5 and 6 illustrate platform 31. The platform has a roughly  
30 rectangular shape, bearing in its center wavy elliptical wall 15 with concentric waves 19 facilitating deformation of wall 15. Wall 41, roughly normal to wall 15 is provided with radial projection 24 ensuring the sealing of chamber 7 during

its application on the radially internal side of the radially external wall of refill 29. The platform 31, is, for some embodiments, provided with elastic return elements or leaf springs 43 ensuring the positioning of the platform in the box of Figures 3 and 4.

5           The packaging of the present invention is produced out of plastic material. Suitable materials include styrene butadiene, polypropylene, ABS or styrene acrylonitrile (SAN) for boxes with a glossy appearance. Platform 31 is produced, for example, out of polypropylene or polyethylene and an additive for improving elastic flexibility. For platforms of small thickness, more rigid plastic  
10 materials are usable, such as ABS or styrene.

          In Figure 7 is a packaging which has a container 1, cover 6 and a mechanism of locking in a closed state of the packaging which are symbolized by arrows 4. Container 1 has bottom 8 and cylindrical wall 9, with an elliptical, oval, polygonal or other shaped base. Wall 9 is vertical or roughly vertical, at  
15 least in its part near opening 14 of chamber 12 for receiving the cosmetic composition of container 1. Cover 6 has wall 16 for closing opening 14, wall 15 configured to the internal side of the upper part of wall 9 of the container, and a mechanism 18 for limiting the course of travel for preventing cover 6 from being pressed inside of container 1. Wall 15 is advantageously arranged parallel to the  
20 upper part where the temporary hermetic sealing of wall 9 is established, that is to say that the distance between the radially internal side of wall 9 is established. That is, the distance between the radially internal side of wall 9 and radially external side of wall 15 is constant or roughly constant. The distance is typically between a few tenths and a few hundredths of a millimeter. The external side of  
25 wall 15 bears annular rib 23 whose thickness in the nonstressed state is greater than the average distance between the radially external side of wall 15 and the radially internal side of wall 9. For example, for a distance between the sides opposite one another of walls 9 and 15 equal to 0.1 mm, annular rib 23 has a radial projection of 0.3 mm so that radial forces, symbolized by arrows 20,  
30 exerted by rib 22 on the radially internal side of wall 9 correspond to a deformation of wall 15 of 0.2 mm on each side. Radial forces 20 ensure the sealing of sealed compartment 14. It should be noted that forces 20 are exerted only in the radial direction. The axial components are zero or roughly zero when

cover 6 is positioned on container 1. During introduction, the very weak axial forces correspond to friction of rib 23 on the internal side of wall 9. This results in the fact that, on one hand, it is possible to ensure excellent sealing of the packaging according to the present invention without having to exert extensive axial force, and, on the other hand, since the reaction to the axial forces is itself zero or roughly zero, the seal formed by walls 9, 15 and annular rib 23 does not tend to cause packaging 1 to open. In Figure 8, annular rib 23 is borne by the internal side of wall 9 opposite the external side of wall 15.

In an embodiment illustrated in Figure 8, cover 6 has wall 15 which is radially external with respect to wall 9 of container 1. Cover 6 exerts a force of constriction on wall 9 of container 1 which promotes application of this wall on its contents, in particular, on a cosmetic composition in a pasty state.

In an example illustrated in Figure 9, annular rib 23 is borne by the radially internal side of wall 15 of cover 6 and is applied on the radially external side of wall 9 of container 1. The embodiment of Figure 4 differs from that of Figure 9 by rib 23 being borne by the radially external side of wall 9 of container 1.

In Figure 11, one can see an embodiment of packaging which combines features of embodiments in Figures 7 and 8 with those of Figures 9 and 10. Container 1 of Figure 11 has chamber 12 for receiving the cosmetic composition, which is delimited by walls 9', a second wall 9 radially external to and connected with wall 9' and /or with bottom 8, in such a way as to form a sealed compartment. The radially internal side of wall 9 forms a support surface for annular rib 19 of cover 6.

Radially external force exerted by rib 23 on wall 9 is only partially transmitted to wall 9', which considerably limits the risk of detachment of the cosmetic composition with respect to walls 9'. It is understood that use of a radially external wall associated with the seal of Figures 8, 9 and /or 10 is not outside the scope of the present invention.

In Figure 12 is a packaging embodiment, of the box type, which is capable of receiving, in a sealed compartment or chamber 12, a cosmetic composition of the foundation, rouge or lipstick type. The box of Figure 12 has lower part 25, upper part 27, and intermediate platform 28 provided in its center

with an opening provided with sealing disk 26 which seals chamber 12. The various elements are articulated by a hinge mechanism 32 with a single pin, shown in Figure 15. Some locking mechanisms, such as a hook and pusher, which is not shown, ensure that the box is maintained in a closed state when it is not used. In order to prevent rotation of the cosmetic composition, cylindrical or oval-based wall 9 is set up on the bottom of lower part 25. The bottom of the container is made rough or to have striations to promote clinging of the cosmetic composition. Sealing disk 26, shown in Figure 12, has a wall extending roughly over the whole extent of opening 12 of sealed compartment 12, as well as wall 15 parallel to wall 9, and provided on its radially external side with annular rib 23 which is applied, in a closed state, on the radially internal sides of wall 9.

For some embodiments, space 22 available above sealing disk 26 forms a chamber which is ventilated by openings, not shown, for storage of the mechanism for application of the cosmetic composition, for example, a sponge or a Japanese foam. Degradation of the application mechanism is prevented by humidity and the formation of mold. Chamber 22 also receives a mirror.

In Figure 13 is an improved example of a box of the present invention which has a single piece 29' forming the platform and the sealing disk. In one embodiment, single piece platform 29' is deformed by a difference in pressure on its two sides in order to provide compensation for such a pressure. Suction of the cosmetic composition by a low pressure brought about by opening of the box according to the present invention is avoided. Compression of the cosmetic composition due to closing of the box as well as sealing problems connected with variations in atmospheric pressure which varies with meteorological conditions and with the altitude such as connected with low and high pressures created in rooms such as the pressurized cabin of an aircraft. Moreover, the packaging according to the present invention is easy to operate, because the internal pressure does not work against its closing, and the external pressure does not work against its opening. An example of deformable wall 29' having concentric waves 19 is illustrated in Figures 5 and 6. Platform 29' has hinges 32, with a mechanism of locking with hooks and some mechanism of return 38, in the form of leaf springs, ensuring that the platform is flattened toward opening 14 of container 12.

Another embodiment of a box of the present invention is illustrated in Figure 14. The sealed compartment of the box of Figure 14 is provided with removable cup 40 which, on one hand, prevents the radially external force exerted by annular rib 23 of wall 15 of platform 30' from  
5 detaching the cosmetic composition from the wall of its container. On the other hand, it is easier to fill a cup with a cosmetic composition than to handle, in a filling line, a complex box for filling opening 12 downward at high temperature. Only the plastic cup provided with a temporary packaging such as a cover, a cap, or similar closure is usable to refill a box according to the present invention.

10 One cup embodiment has an undercut shape such that its opening 14, shown in Figure 17, has a width smaller than that of a widened part. Consequently, on one hand, cup 40' tends to retain a product if the box is overturned with opening 14 downward, and on the other hand, the narrow walls of the cup at the site of opening 14 provide optical masking of possible  
15 detachments of the cosmetic composition with respect to the walls at the bottom due to evaporation of the solvent in case of prolonged opening of the box, corresponding to a common error of users.

The undercut shape of the receiving cup also makes it possible to mask the shrinkage of the cosmetic composition which is poured hot into the  
20 well, during its shrinkage due to a cooling phase.

In Figures 4, 15 and 16, is shown an execution example of box 1 according to the present invention, which has lower part 25' provided with a central opening for receiving cup 40', whose attachment on the box is ensured by any known mechanism, such as by screwing over a quarter turn or by catching.  
25 The cosmetic composition 5 is illustrated by the dots in Figure 16.

Some embodiments of mechanisms for attachment of cup 40' are illustrated in Figures 17 and 18 and have wall 42, radially external to wall 9, provided with securing elements 44, for example, in the form of hooks distributed preferably regularly on the periphery of wall 42. The cup is roughly  
30 elliptical and it has four securing hooks 45 arranged at the intersection of the large and the small axis of the ellipse with the external side of wall 42.

The undercut cup is produced by blowing, or with a mold which is opened in two steps: first, the exterior of the mold is released; then a piston



ensures the release of the cup with passage of narrow opening 14 through a zone of greater width of the mold by elastic deformation of the plastic material constituting the cup.

5 In Figure 19 is an annular rib 23 arranged on wall 15 facing wall 9 a distance  $d$  away, for example, equal to 0.1 mm. The intersection between the space occupied by rib 23 in the absence of wall 9 and the wall 9 in the absence of rib 23 having a radial extent  $e$ , for example, equal to 0.2 mm. As a variant, at rest, the diameter of opening 14 is less than the diameter of the radially external side of wall 15. In this case, cover 6 is introduced by force and rib 23 separates  
10 the opposite walls. Annular ribs may be rounded, polygonal such as triangular or trapezoidal.

In Figure 20 is a packaging according to the present invention, which has external envelope 1, for example, cylindrical, elliptical-based, oval, polygonal or other shape, which is closed by cover 6. Base 45 of envelope 1 is  
15 provided with opening 46 for receiving refill 29, in particular, within a trough or a well 10 which is capable of receiving a cosmetic and /or pharmaceutical composition. Some mechanism for locking 39, for example, with a screw thread, a set of pins or pegs allowing locking by catching, ensuring that trough or well 10 is assembled with the packaging according to the present invention.

20 The packaging of Figure 20 does not ensure hermetic sealing of refill 29. In particular, this packaging offers the risk of passage of fluid at the edges of opening 14 between the edge of base 45 and the wall facing trough or well 10.

Use of packaging of Figure 21 requires several operations that  
25 include removing cover 6, removing cover 47, taking the desired quantity of the cosmetic and/or pharmaceutical composition, putting cover 47 back on well 10 and putting cover 6 back on the packaging.

In Figure 22 is an example of a packaging which has cover 6 provided, for example, in its center with cap 47 which ensures the temporary  
30 hermetic sealing of trough or well. Furthermore, an execution example of the packaging illustrated in Figures 23, 24 and 25 has a mechanism of locking that comprises pegs 50 and 51, that catch envelope 1 of the packaging which has corresponding grooves.

In Figure 23 is an execution variant of the packaging according to the present invention, whose trough or well 10 moreover has radially internal chamber 49 for receiving the cosmetic composition, which is delimited by walls 50 and radially external walls 51 for application of cap 13' of cover 6. Cap 13' is applied on the radially internal side of radially external wall 51 and thus ensures temporary hermetic sealing of chamber 29. The radially external force exerted by cap 13' on walls 51 is only very partially transmitted to walls 50, which considerably limits the risk of detachment of the cosmetic composition from wall 50. One preferred embodiment of refill 29, for example, in the form of a trough or well according to the present invention, is illustrated in Figures 24 to 26. Trough or well 10 advantageously has an undercut shape, that is to say that its opening 52 has a width smaller than that of its bottom facing it. Consequently, on the one hand, well 10 tends to retain the cosmetic composition if the box according to the present invention is overturned, opening 52 downward, and on the other hand, the narrow walls of the well at the site of opening 52 provide optical masking of the possible detachments of the cosmetic composition with respect to the walls at the bottom due to evaporation of the solvent in case of prolonged opening of the box, corresponding to a common error of users. The undercut shape of trough or well 10 for receiving the cosmetic makes it possible to mask the shrinkage of this composition which is poured hot into the trough or well, during its shrinkage due to a cooling phase.

The undercut well is produced by blowing or advantageously by injection, with a mold which is opened in two steps: first of all, the exterior of the mold is released; then a piston ensures the release of the trough or well with passage of narrow opening 52 through a zone of greater width of the mold by elastic deformation of the plastic material constituting the trough. The attachment of well 10 on lower part 25 of the box according to the present invention is done by any known mechanism such as, for example, by screwing over a quarter turn, pinning, or advantageously, by catching. For example, trough or well 10 has, exterior to walls, radially external wall 51 provided with securing element, for example, in the form of hooks or on the contrary, securing grooves distributed preferably regularly on the periphery of wall 51. In the example illustrated, the well is roughly elliptical, and it has four securing hooks

39 arranged at the intersection of the large and the small axis of the ellipse with the external side of wall 51.

The securing of refill 29 by opening 10 made in base 45 of the box according to the present invention allows one to produce a packaging with a  
5 limited space requirement. Moreover, the bottom of well or trough 10 extending advantageously in the extension of the bottom of lower part 25 of the box according to the present invention gives the latter a particularly aesthetic appearance.

Furthermore, well or trough 10 is particularly easy to fill on an  
10 automatic filling line, particularly hot. In such a case, the well is made out of a material which is resistant to the filling temperature. The rest of the box can be made of materials with a lower price.